

ENVIRONMENTAL ASSESSMENT FOR TEMPORARY PLANNED DEVIATION TO ADJUST CLASSIFICATIONS OF HYDROLOGIC INDICATORS AND FORECASTS

1 PROJECT PURPOSE AND NEED

1.1 PROJECT AUTHORITY.

Authority for this action is the Flood Control Act of 1948 (approved by Congress on June 30). It authorized the Central and Southern Flood Control Project, which is a multipurpose project that provides flood control, water supply for municipal, industrial, and agricultural uses; prevention of salt water intrusion; water supply for Everglades National Park (ENP); and protection of fish and wildlife resources.

1.2 PROJECT LOCATION.

The areas that may be affected by the proposed action includes Lake Okeechobee, the St. Lucie and Caloosahatchee Estuaries, and the Everglades Water Conservation Areas (see **Figure 1**, vicinity map).

Lake Okeechobee is located in south central Florida, and occupies portions of Glades, Hendry, Martin, Okeechobee, and Palm Beach Counties. The lake has an area of approximately 730 square miles.

The St. Lucie Estuary is located within portions of both Martin and St. Lucie Counties on the southeast coast of Florida. The two forks of the St. Lucie Estuary, the North Fork and South Fork, flow together near the Roosevelt Bridge at the City of Stuart, and then flow eastward approximately six miles to the Indian River Lagoon and Atlantic Ocean at the St. Lucie Inlet.

The Caloosahatchee Estuary is located on the southwest coast of Florida in Lee County. The Caloosahatchee River runs from Lake Okeechobee to the W. P. Franklin Lock and Dam (S-79) where it empties into the estuary.

The Water Conservation Areas (WCAs) are located to the south of Lake Okeechobee and to the north of Everglades National Park. The WCAs are areas managed for multiple purposes, but designed to receive and store water from adjacent areas, including Lake Okeechobee.

1.3 PROJECT NEED OR OPPORTUNITY.

The need for this action is clearly defined by limitations on releases from Lake Okeechobee during periods when water levels are high and the lake's littoral area would benefit from a reduction in water levels. As the recent past has shown, the Water Supply and Environment (WSE) regulation schedule may not allow for lake discharges even when a prolonged, moderately high stage is detrimental to the lake's littoral zone and ecological health.

1.4 AGENCY GOAL OR OBJECTIVE.

The agency goal is to improve performance of the WSE regulation schedule. The objective is to increase frequency of low level pulse releases in the lower zone of the schedule (Zone D) to improve in-lake performance with minimal or no adverse impacts to the performance of the multiple lake management objectives. Lower level pulse releases, which occur more often while in Zone D, can reduce the likelihood that the lake stage will go into a zone which may require higher discharges.

1.5 BACKGROUND AND PREVIOUS ENVIRONMENTAL DOCUMENTS.

A Final Environmental Impact Statement (EIS) was completed for the Lake Okeechobee Regulation Schedule Study. The EIS led to a Record of Decision (ROD) signed in July 2000. The objective of the study was to develop and select a new regulation schedule that would better optimize environmental benefits with little or no impact to competing purposes of flood control, water supply, navigation, regional groundwater control, salinity control, enhancement of fish and wildlife, and recreational purposes (USACE, 2000a). The schedule that was recommended in the EIS was named WSE (Water Supply and Environment) since it was designed to improve benefits to water supply and both lake and estuarine ecology. The WSE schedule was approved and implemented in 2000, and is the current regulation schedule for Lake Okeechobee. The regulation schedule that preceded WSE was known as the Run 25 regulation schedule.

The WSE regulation schedule was developed with the intent to improve the performance of the lake's littoral zone habitat and water supply, without impacting the other lake management objectives. The WSE regulation schedule provides more operational flexibility relative to earlier flood control schedules, such as Run 25, and was specifically designed to "optimize environmental benefits at minimal or no impact to competing lake purposes" (USACE, 2000a). The first releases made under WSE occurred in July 2002. In the short time since its implementation, the WSE has demonstrated improved performance for environmental objectives but also, its performance is equal to, or better than, the previous schedule, Run 25, for flood protection and water supply. However, it is realized that some improvements to the WSE can be made with minor modifications to the regulation schedule. A specific weakness of WSE has been the high percentage of time that the estuary

decision tree (**Figures 2 & 3**) calls for no releases while the lake stage is in Zone D of the regulation schedule. There have been times when such releases could have been made to the estuaries, ***without adverse impacts***, but the decision tree did not lead to that action. Such releases would have benefited Lake Okeechobee's littoral zone without significantly impacting other lake management objectives.

As part of recent efforts to improve the performance of the WSE, so that it better meets its intended objectives as described in the WSE EIS, several alternative regulation schedule modifications were developed and analyzed by the South Florida Water Management District (SFWMD). Of the alternatives that were evaluated, one referred to as the *Class Limit Adjustment* (CLA), detailed below, appears to meet the goals and objectives of both the SFWMD and the U.S. Army Corps of Engineers' (USACE) efforts to improve the WSE. The CLA could be an easily implemented modification that merges well with the existing WSE EIS.

This modification, or refinement, would increase the frequency of Zone D pulse releases. The WSE regulation decision trees (**Figures 2 & 3**) utilize three operational elements to evaluate the conditions in the lake and the regional system to make weekly operational decisions. The CLA lowers the classification limits of the Tributary Hydrologic Conditions and Lake Okeechobee's Net Inflow Outlook (LONINO), thus decreasing the percent of time when the decision tree indicates no releases should be made. The CLA improves the likelihood of making smaller releases more often, as opposed to stressful high damaging estuary releases. Smaller releases are preferred because the higher volume releases can have adverse effects to estuarine biota. The CLA would allow water managers to have the enhanced flexibility to allow for more environmentally sensitive management of discharges to the estuaries.

The performance of the CLA was simulated by using the South Florida Water Management Model (SFWMM v5.4.2). The SFWMM is a regional-scale, continuous simulation, hydrologic model that was developed and is maintained by the SFWMD. The SFWMM simulates the hydrology and water management of southern Florida from Lake Okeechobee to Florida Bay (Neidrauer, et al., 1998). The technical report in **Appendix B** summarizes the performance of the CLA alternative relative to the baseline WSE schedule with the original class limits.

1.6 DECISIONS TO BE MADE.

If a Finding of No Significant Impact (FONSI) results from this EA, then a temporary planned deviation to the WSE would be considered as an appropriate action to improve the WSE.

1.7 SCOPING AND ISSUES.

Many scoping response letters were received during the scoping process. Many comments indicated support for increased flexibility to make low level pulse releases from Lake Okeechobee for environmental benefits. Scoping comments can be found in Appendix C, pertinent correspondence.

1.7.1 ISSUES EVALUATED IN DETAIL.

The following issues were identified to be relevant to the proposed action and appropriate for detailed evaluation:

- Water Supply
- Impacts to Lake and Estuarine Biota
- Endangered and Threatened Species
- Water Quality
- Flood Control

1.7.2 ISSUES ELIMINATED FROM DETAIL ANALYSIS.

The following issues were not considered important or relevant to the proposed action:

- Historic Properties
- Navigation
- Air Quality
- Hazardous, Toxic and Radioactive Waste

1.8 PERMITS, LICENSES, AND ENTITLEMENTS.

This action will be coordinated with the Florida Department of Environmental Protection pursuant to the Coastal Zone Management Act, 16 U.S.C., 1451-1464, as amended, and will be consistent with the Florida Coastal Management Program.

2 ALTERNATIVES

This section describes in detail the no-action alternative and the proposed action. Then based on the information and analysis presented in the sections on the Affected Environment and the Probable Impacts, this section presents the beneficial and adverse environmental effects in comparative form, providing a clear basis for choice among the options for the decision maker and the public.

2.1 DESCRIPTION OF ALTERNATIVES.

2.1.1 NO ACTION (STATUS QUO)

The no action alternative is the existing Water Supply and Environment (WSE) regulation schedule that would continue to be used should no action be taken. It is sometimes referenced in this document as the “base” or “baseline”.

2.1.2 CLASS LIMIT ADJUSTMENT

The Class Limit Adjustment (CLA) lowers the classification limits of the tributary hydrologic conditions and the seasonal and multi-seasonal Lake Okeechobee Net Inflow Outlook (LONINO). Thus, the decision trees (*Figures 2 & 3*) will lead to more frequent releases. The decision trees, which utilizes three operational elements to evaluate the conditions in the lake and the regional system, would continue to be used for Lake Okeechobee operational decisions. The class limit adjustment would modify the thresholds to the lower classification limits called for by the decision trees for releases to the Water Conservation Areas (WCAs) and to the estuaries. More detailed information and the simulated performance of the CLA is presented in *Appendix B*.

2.2 PREFERRED ALTERNATIVE

The preferred alternative is 2.1.2, Class Limit Adjustment (CLA).

2.3 COMPARISON OF ALTERNATIVES

Table 1 lists alternatives considered and summarizes the major features and consequences of the proposed action and alternatives. See section 4.0 Environmental Effects for a more detailed discussion of impacts of alternatives.

Table 1: Summary of Direct and Indirect Impacts

ALTERNATIVE ENVIRONMENTAL FACTOR	Class Limit Adjustment	No Action Status Quo
PROTECTED SPECIES	No adverse impact to protected species.	No adverse impact to protected species.
FISH AND WILDLIFE RESOURCES	Benefits anticipated in the lake due to improved habitat quality, especially for sport fisheries. Reduces the occurrences of high damaging estuary flows, which reduces the potential for adverse impact to estuarine flora and fauna.	High lake levels could impact the lake's littoral zone vegetation resulting in adverse impacts to fish and wildlife habitat. The potential for higher lake stages could result in WSE prompting higher estuary flows. High flows could adversely impact estuarine biota.
VEGETATION	Lower lake stage would benefit the lake's littoral zone vegetation. Reduces the occurrences of high damaging estuary flows, which reduces the potential for adverse impact to estuarine flora.	High lake levels could impact the lake's littoral zone vegetation. The potential for higher lake stages could result in WSE prompting higher estuary flows. High flows could adversely impact estuarine biota.
WATER QUALITY	Benefits anticipated in shoreline areas of the lake where submerged plants occur.	Greater potential for high damaging estuary flows resulting in more turbid conditions in the estuaries.
RECREATION	No impact	No impact
AESTHETICS	Benefits anticipated due to reduced algal blooms in shoreline plant-dominated areas of the lake if decreased water depths result in increased plant growth.	Potential for algal blooms reducing aesthetics.

ALTERNATIVE ENVIRONMENTAL FACTOR	Class Limit Adjustment	No Action Status Quo
NAVIGATION	No impact	No impact
ECONOMICS	No impact	No impact
ESSENTIAL FISH HABITAT	May reduce adverse impact to estuarine flora and fauna due to reduction in high damaging estuary flows.	Potential for higher lake stages, which could result in WSE prompting higher estuary flows. High volume flows could adversely impact estuarine biota.
WATER SUPPLY	No impact	No impact
FLOOD PROTECTION	No impact.	No impact

3 AFFECTED ENVIRONMENT

The Affected Environment section succinctly describes the existing environmental resources of the areas that would be affected if any of the alternatives were implemented. This section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the "no-action" alternative forms the base line conditions for determining the environmental impacts of the proposed action.

3.1 GENERAL ENVIRONMENTAL SETTING

Lake Okeechobee is a subtropical lake in south Florida with a surface area of 730 square miles and an average depth of 9 feet. As a result of this shallow depth, wind is a major influence on the lake. The lake has an extensive littoral zone that occupies about 25 percent of the lake's surface. Littoral vegetation occurs along much of the lake's perimeter, but is most extensive along the southern and western border (USACE, 2000a). The vegetation and cover types within the Lake Okeechobee region have been greatly altered during the last century. Historically, the natural vegetation was a mix of freshwater marshes, hardwood swamps, cypress swamps, pond apple forests, and pine flatwoods. At present, the littoral zone vegetation consists of many native plant species but also consists of many less desirable and invasive exotic species. The invasion of exotic vegetation has impacted the health and productivity of the littoral zone plant community. Anthropogenic disturbances such as altered hydrology and pollution, along with nutrients, can directly and indirectly affect the health of Lake Okeechobee.

The Caloosahatchee Estuary is a large system where the Caloosahatchee River freshwater mixes with the Gulf of Mexico. A shallow bay supporting seagrass beds with mud and sand flats throughout characterizes the lower region closest to the Gulf of Mexico. Mangroves are a dominant species occurring on undeveloped shorelines.

There are two forks of the St. Lucie Estuary, the North Fork and the South Fork, that flow together and then eastward to the Indian River Lagoon and Atlantic Ocean at the St. Lucie Inlet. Both estuaries attract a variety of commercial, recreational and educational activities such as fishing, boating, ecotourism, and sightseeing.

3.2 VEGETATION

Lake Okeechobee

The littoral zone of Lake Okeechobee occupies about 25 percent of the lake's surface (USACE, 2000a). The plant community consists of emergent, submerged and floating plants. Lake Okeechobee vegetation is important as it provides critical habitat for fish and wildlife and it helps improve near-shore water quality. Many invasive exotic plant species invade the littoral zone of Lake Okeechobee. These exotic species displace native vegetation, and in the process, reduce the natural habitat needed for fish and wildlife. Additionally, exotic plant species impede navigation and potentially create water quality problems.

St. Lucie and Caloosahatchee Estuaries

Submerged Aquatic Vegetation (SAV) such as tape grass (*Vallisneria Americana*), shoal grass (*Halodule wrightii*), and turtlegrass (*Thalassia testudinum*) are prominent plant species in the Caloosahatchee used as performance indicators to determine the desirable range and frequency of water flow. *Vallisneria* is used extensively in the Caloosahatchee River Estuary as an indicator species as it has been proven to be an excellent ecological representative for a wide variety of other biota for this area (USACE, 2000a). The SFWMD staff monitors the Caloosahatchee River Estuary to quantify the performance of these plant species. The performance of these species provides a measure of the success of hydrologic performance measures and management strategies used to meet them.

Plants are not used as indicator species in the St. Lucie Estuary. The flow and salinity envelopes in the St. Lucie Estuary are based on the salinity requirements of the American oyster (*Crassostrea virginica*).

3.3 THREATENED AND ENDANGERED SPECIES

Endangered and threatened species known to occur within the project area include:

COMMON NAME	SCIENTIFIC NAME	STATUS
Everglades snail kite	<i>Rostrhamus sociabilis plumbeus</i>	E(CH)
Wood stork	<i>Mycteria americana</i>	E
West Indian manatee	<i>Trichechus manatus</i>	E(CH)
Bald eagle	<i>Haliaeetus leucocephalus</i>	T
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T
Okeechobee gourd	<i>Cucurbita okeechobeensis</i>	E

E = Endangered; T = Threatened; CH = Critical Habitat has been designated

Everglades Snail Kite

Lake Okeechobee and surrounding wetland are major nesting and foraging habitat, particularly the large marsh in the southwestern portion of the lake and the area southwest of the inflow of the Kissimmee River (USFWS, 1999b). The entire littoral zone and western shore of Lake Okeechobee are designated as critical habitat for the snail kite. Snail kites require foraging areas that are relatively clear and open in order to visually search for apple snails (USFWS, 1999b). Apple snails (*Pomacea paludosa*) are the main diet for the Florida population of snail kites. Lake Okeechobee apparently retains some suitable habitat for the snail kite, but recent surveys have shown a decline for nesting on Lake Okeechobee. For a complete species description, taxonomy, distribution, habitat requirement, management objectives, and current recovery status, reference the South Florida Multi-Species Recovery Plan (USFWS, 1999).

Wood Stork

The wood stork is listed as endangered by the USFWS and the FFWCC. Wood storks forage in freshwater marshes, seasonally flooded roadside or agriculture ditches, narrow tidal creeks, shallow tidal pools, managed impoundments, and depressions in cypress heads and swamp sloughs. Wood storks feed almost entirely on fish between 2 and 25 cm in length.

West Indian manatee

The West Indian manatee has been recognized as an endangered species since 1967. Manatees are found throughout the waterways in south Florida, and frequently are found in Lake Okeechobee and the Okeechobee Waterway. Manatees feed on a variety of submergent, emergent and floating vegetations and usually forage in shallow grass beds adjacent to deeper channels.

Bald Eagle

Shorelines, such as the shorelines around Lake Okeechobee, the Okeechobee Waterway, and estuaries provide fishing and loafing perches, nest trees, and open flight paths for the bald eagle (USFWS, 1999b). Bald eagles are known to nest around the study area. The eagle is an opportunistic species, but primarily feeds on fish (USFWS, 1999b).

Eastern Indigo Snake

The eastern indigo snake is a large, black, non-venomous snake and occurs throughout the study area. This species is generally an upland species snake, occupying a wide variety of habitat.

Okeechobee Gourd

There are several localized sites along the southeastern shore of Lake Okeechobee, where this vine plant is found. Fluctuating lake levels are necessary for the continued survival and recovery of the gourd within and around Lake Okeechobee.

3.4 FISH AND WILDLIFE RESOURCES

Lake Okeechobee provides a wide variety of habitat for fish and wildlife including wading and migratory birds, mammals, amphibians, reptiles, and a large number of fish species. Drought and extreme high water can both be detrimental to the fish and wildlife resources of Lake Okeechobee. High flow releases from the lake can have adverse consequences in the St. Lucie and Caloosahatchee Estuaries. These effects were discussed in great detail in the Lake Okeechobee Regulation Study in 2000 (reference USACE, 2000a).

3.5 ESSENTIAL FISH HABITAT

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act of 1976 and the 1996 Sustainable Fisheries Act, an Essential Fish Habitat (EFH) Assessment is necessary for implementation of the Preferred Alternative. An EFH Assessment is a review of the proposed project and its potential impacts to EFH. The rules promulgated by the National Marine Fisheries Service (NMFS) in 1997 and 2002 further clarify EFH by definition as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.” *Waters* include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include areas historically used by fish where appropriate. *Substrate* includes sediment, hardbottom, structures underlying the waters, and any associated biological communities. *Necessary* means the habitat required to support a sustainable fishery and managed species’ contribution to a healthy ecosystem. *Spawning, breeding, feeding, or growth to maturity* covers all habitat types used by a species throughout its life cycle.

Only species managed under a federal fishery management plan (FMP) are covered (50 C.F.R. 600). The act requires federal agencies to consult on activities that may adversely influence EFH designated in the FMPs. The activities may have direct (e.g., physical disruption) or indirect (e.g., loss of prey species) effects on EFH and may be site-specific or habitat-wide. The adverse result(s) must be evaluated individually and cumulatively.

South Atlantic Fishery Management Council (SAFMC) has designated seagrass areas within the study area as EFH (**Table 2**). Impacts to EFH result in the loss of substrate used by managed species for spawning, nursery, foraging, and migratory/temporary habitats. Estuaries are areas of particular concern for shrimps,

red drum, and grouper. These species prefer estuarine inshore habitats such as seagrass beds for portions of their life history requirements.

Table 2 Essential Fish Habitat Areas in the Study Area

Estuarine Areas (Caloosahatchee River Estuary and St. Lucie Estuary)	Estuarine Emergent Vegetation
	Estuarine shrub/scrub (mangrove)
	Seagrass
	Intertidal flats
	Estuarine Water Column
	Algae

Source: South Atlantic Fisheries Management Council, 1998

In conformance with the 1996 amendment to the MSFCMA, the information provided in this EA will comprise the required EFH assessment. This EA will be coordinated with the NMFS Habitat Conservation Division and initiate consultation under the MSFCMA.

3.6 WATER QUALITY

Waters of Lake Okeechobee have been designated by the State of Florida as Class I Waters, suitable for potable water supplies, and Class III, recreation, propagation and maintenance of a health, well-balanced population of fish and wildlife

3.7 WATER SUPPLY

Lake Okeechobee supplies water for agricultural irrigation, municipalities, industry, Everglades National Park, regional groundwater control and for salinity control. The Caloosahatchee River (C-43) serves as a water supply for Lee County and the city of Ft. Myers.

3.8 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE

A preliminary assessment indicated no evidence of hazardous, toxic or radioactive waste (HTRW) affecting this action.

3.9 AIR QUALITY

No significant sources of air quality pollutants are located in the Lake Okeechobee and Waterway vicinity.

3.10 NOISE

Ambient noise levels are low to moderate in the Lake Okeechobee region. The major noise producing sources are vehicular and boat traffic.

3.11 AESTHETIC RESOURCES

Lake Okeechobee, Caloosahatchee River Basin and the St. Lucie Estuary have several landscape features that are aesthetically appealing to tourists and local communities.

3.12 RECREATION RESOURCES

Lake Okeechobee and the St. Lucie and Caloosahatchee Estuaries are considered popular recreational resources in South Florida. Fishing, recreational boating, sightseeing, wildlife watching, camping and swimming are just a few of the recreational activities residents and visitors participate in. Lake Okeechobee is host to over 500 permitted bass fishing tournaments annually and ranks as the top bass fishing lake in the USA (Havens, et al., 2004a).

3.13 NAVIGATION

The Okeechobee Waterway connects Stuart on the Atlantic Ocean with Ft. Myers on the Gulf of Mexico. The waterway consists of 154 miles of navigation channel, including the lake itself. Commercial and recreational navigation via the Okeechobee Waterway take advantage of this shortcut across the Florida peninsula

3.14 WATER CONSERVATION AREAS (WCA)

The WCAs cover approximately 1,372 square miles and are located south of Lake Okeechobee and Everglades Agricultural Area. The WCAs are divided into three areas known as WCA 1 (also known as the Arthur R. Marshall Loxahatchee National Wildlife Refuge), WCA 2 (the smallest of the WCAs) and WCA 3, the largest of the WCAs covering approximately 915 square miles (USACE, 2000a).

The Water Control Plan for Lake Okeechobee (USACE, 200b) outlines the pulse release criteria for the WSE regulation schedule. The level of pulse release selected at a particular juncture of the WSE Operational Guidelines Decision Tree (Figures 3 & 4) takes into consideration a number of factors including water levels in the WCAs. Higher than desirable water levels in the WCAs should allow pulse releases

to be made to tidewater at lower lake levels, while lower than desired water levels in the WCAs may preclude or lessen regulatory discharges being made to tidewater (USACE, 2000a). This is particularly true while in Zone D of the WSE regulation schedule.

3.15 HISTORIC PROPERTIES

This action was coordinated in accordance with Section 106 of the *National Historic Preservation Act* of 1966, as amended, and 36 C.F.R., Part 800: *Protection of Historic Properties*. The State Historic Preservation Officer advises and assist the Corps in identifying historic properties (archaeological, architectural, and historical) listed, or eligible for listing, in the *National Register of Historic Places*, assessing the project's effects, and considering alternatives to avoid or minimize effects.

4 ENVIRONMENTAL EFFECTS

This section is the scientific and analytic basis for the comparisons of the alternatives. See table 1 in section 2.0 Alternatives, for summary of impacts. The following includes anticipated changes to the existing environment including direct, indirect, and cumulative effects.

4.1 GENERAL ENVIRONMENTAL EFFECTS

The performance of the CLA was simulated by using the South Florida Water Management Model (SFWMM v5.4.2). The SFWMM is a regional-scale, continuous simulation, hydrologic model that was developed and is maintained by the SFWMD. The SFWMM simulates the hydrology and water management of southern Florida from Lake Okeechobee to Florida Bay (Neidrauer, et al., 1998). The modeling results were the basis for comparison between the CLA alternative and the no action alternative (base). The environmental effects evaluation in this section is based on the simulation modeling results.

The proposed alternative (CLA) is a minor fine-tuning adjustment which, as demonstrated by simulation modeling, is expected to improve in-lake ecological benefits with minimal, if any, adverse impacts to the other lake management objectives.

It is also important to state that while the CLA is an enhancement that improves the performance of WSE over the long term, it is important to look at the 36-year model output of the Lake Okeechobee stage hydrograph to see that although CLA is an improvement in many years, it cannot control the lake stage during very wet periods (**Figures 4, 5, and 6**). CLA does improve the ability to make releases at lower levels, while in Zone D, and there are years when this prevents the lake stage from rising into Zone C or Zone B. For example 1979 and 1980 (**Figure 5**) shows CLA reduces the amount of time in Zone C, and 1983 shows a reduction in the amount of time in Zone B. Although CLA shows an overall improvement, there are years when a rain event occurs late in the wet season, followed by a wetter than normal dry season, when the Lake Okeechobee stage may still rise into the higher regulatory zones; for example 1969-70 (**Figure 4**) and 1994-95 (**Figure 6**). Of greatest benefit from CLA are the years when a reduction in the lake stage could help prevent a tropical or other rain event from causing the lake stage to rise above Zone D; for example 1966 (**Figure 4**), 1979-80 and 1982 (**Figure 5**) and 1993 (**Figure 6**).

4.2 VEGETATION

4.2.1 PROPOSED ACTION, CLASS LIMIT ADJUSTMENT

Lake Okeechobee

Modeling results (reference Water Resources Advisory Commission Lake Okeechobee Workshop in Appendix B, pages 22-24) indicate that the CLA alternative reduces the occurrence of lake stages above 17 feet compared to the base, and also improves the seasonal variation of lake stages. These responses are anticipated to have benefits for submerged aquatic plants in the lake's shoreline and littoral areas, and this in turn is expected to have benefits for fish that use those plant communities as essential spawning and foraging habitat (Havens, et al., 2004a). Increased submerged plant biomass also is known to be associated with improved water quality, because plants and their associated periphyton remove nutrients from the water, which lessens the risk of shoreline algal blooms. (Havens, et al., 2004b).

St. Lucie

The St. Lucie Estuary performance was evaluated by counting the number of times during the 36-year (432 months) simulation that the average monthly flows to the estuary exceeded specific flow limits. The summary of the mean monthly flow envelope can be found below in **table 3**.

Table 3. St. Lucie Estuary Mean Monthly Flow Envelope Summary

Total inflows to SLE (basin runoff from C23,C24, C44, etc, plus LOK releases) (mean monthly cfs)	BASE (months)	CLA (months)	CLA-BASE (months)
< 350 cfs (less is better)	136	129	-7 (better)
350-2000 cfs (more is better)	231	235	+4 (better)
2000-3000 cfs (less is better)	33	40	+7 (worse)
> 3000 cfs (less is better)	32	28	-4 (better)

Source: SFWMD Technical Report (Appendix B)

As table 3 indicates, there is an increase in the moderate discharges to the St. Lucie Estuary. When low to moderate releases are done over a longer time-frame and in an estuarine-sensitive manner, then there may be some avoidance of the higher damaging discharges. Under the CLA action, there would be slightly less damaging discharges greater than 3,000 cfs (4 less than the base, or no action alternative). The simulation results do not indicate any adverse impact to oysters for the St. Lucie Estuary.

Caloosahatchee River Estuary

The Caloosahatchee Estuary performance was evaluated by counting the number of times during the 36-year (432 months) simulation that the average monthly flows to the estuary exceeded specific flow limits.

Table 4. Caloosahatchee Estuary Mean Monthly Flow Envelope Summary

Inflows to CE at S-79 (C43 basin runoff plus LOK releases) (mean monthly cfs)	BASE (months)	CLA (months)	CLA-BASE (months)
< 300 cfs (less is better)	156	149	-7 (better)
300-2800 cfs (more is better)	207	207	0
2800-4500 cfs (less is better)	37	42	+5 (worse)
> 4500 cfs (less is better)	32	34	+2 (worse)

Source: SFWMD Technical Report (Appendix B)

The results of the CLA simulation for the Caloosahatchee are rather complex. The modeled differences are small. As compared to the base case, the CLA simulation shifts 7 months from the low flow category to the moderate and high flow categories. This represents a change of 1.6% (7 of 432 months). The additional seven months of discharge (> 2800 cfs) would have adverse effects on seagrasses in the lower more marine end of the estuary. On the other hand, the seven fewer months of flows below 300 cfs would benefit tape grass beds, *Vallisneria americana*, in the upper brackish region of the estuary. These beds are sensitive to high salinity events caused by intrusion of ocean water. These intrusions occur when flows fall below 300 cfs at the Franklin Lock and Dam. The decrease in low flows (<300 cfs) versus the increase in moderate to high flows (>2800 cfs) could potentially offset each other. Since the modeled differences are small and potentially offsetting, neither benefits or adverse impacts could be determined.

4.2.2 NO ACTION ALTERNATIVE (STATUS QUO)

Tables 3 and 4 compare the mean monthly flows with the no action alternative (base) and with the CLA alternative. A key feature of the WSE schedule is the lower operational zone, labeled Zone D (**reference Figure 7**). This zone allows the operational flexibility to release water to the Everglades Water Conservation Areas (WCAs) and estuaries, to lower lake water levels, which minimizes adverse impacts to the lake's littoral zone. If very wet conditions exist or are expected over the next six months, releases to the WCAs and pulse releases to tidewater are initiated in Zone D (**Figures 2, 3 and 7**). However, since the first releases made under WSE, in July 2002, it has been observed that the schedule called for no releases to the estuaries during a long period from February to June 2003. As documented in

Appendix B (SFWMD technical report), the lake stage at the beginning of the 2003 wet season was approximately 14.6 ft. NGVD (in the middle of Zone D). August and September inflows pushed the lake stage into Zone C and for a short period of time into Zone B. To regulate the high lake stage, large damaging discharges to both estuaries were required. If a moderately high lake stage exists when a seasonal net inflow forecast prompts WSE to make no lake releases prior to the wet season, then a higher lake stage is the result, which can be detrimental to the lake's vegetation. **Appendix B** goes into more detail comparing the no action alternative with the CLA alternative.

It is important to state that the WSE (no action alternative) schedule was adopted in 2000 because it appeared to provide substantial benefits for Lake Okeechobee's littoral zone and marsh. In its short existence, the WSE has demonstrated much better performance as compared with the previous regulation schedule, Run 25. However, there have been several opportunities when water managers desired to make releases to tidewater, but the decision tree did not lead to that action. Low-level pulse releases would have provided relief to Lake Okeechobee's shoreline vegetation and littoral zone *without causing adverse effects* to downstream estuaries.

4.3 THREATENED AND ENDANGERED SPECIES

4.3.1 PROPOSED ACTION, CLASS LIMIT ADJUSTMENT

Everglades Snail Kite

The snail kite is sensitive to the ecological health of Lake Okeechobee's littoral zone. It is expected that the CLA will improve conditions in the lake's littoral zone, resulting in benefits to habitat conditions needed for the snail kite. As such, implementation of the CLA would not adversely impact the Everglades snail kite or adversely affect the designated critical habitat of this species. When compared to the WSE, the CLA would be more beneficial to habitat conditions in the littoral zone.

Wood Stork

The potential improvement to conditions of the lake's littoral zone should benefit a variety of wading birds, including the wood stork. This alternative would not adversely affect the wood stork.

West Indian manatee

There would be no adverse effect on habitat conditions for the manatee as a result of this action. As such, there would be no effect to this species as a result of the proposed action.

Bald Eagle

The potential improvement to conditions of the lake's littoral zone, may result in enhanced productivity of fish in the lake. Foraging conditions may be slightly improved for the eagle. This action would not adversely affect the bald eagle.

Eastern Indigo Snake

The action will not likely affect the indigo snake, which primarily inhabits upland. The project does not include any changes to the water regulation infrastructure around the lake, such as the Herbert Hoover Dike, where the snake may be found.

Okeechobee Gourd

The CLA action improves in-lake performance. As such, there would be a potential benefit to listed species, such as the Okeechobee Gourd, where a lower lake stage is crucial for its survival. There would be a slight benefit to this species.

4.3.2 NO ACTION ALTERNATIVE (STATUS QUO)

The USFWS concluded during coordination of the WSE that expected improvements on habitat conditions due to WSE would likely benefit the Okeechobee gourd, bald eagle, wood stork, and the Everglades snail kite in the vicinity of Lake Okeechobee (USACE, 2000a). This alternative would not adversely impact endangered or threatened species under the jurisdiction of the USFWS.

4.4 FISH AND WILDLIFE RESOURCES

4.4.1 PROPOSED ACTION, CLASS LIMIT ADJUSTMENT

Lake Okeechobee

As was the conclusion with vegetation (4.2.1) the effects of the CLA are expected to be beneficial to the fish and wildlife resources of Lake Okeechobee. Compared to the base, or no action alternative, the CLA alternative would reduce the occurrence of lake stages above 17 ft. and also improve the seasonal variation of lake stages. These responses would benefit aquatic plants in the lake's shoreline and littoral zone areas, which would be a benefit for fish and wildlife using those plant communities for spawning and foraging habitat.

Caloosahatchee and St. Lucie Estuaries

Estuarine scientists from the SFWMD are, and would continue to be, consulted to determine the needs of the Caloosahatchee River Estuary and St. Lucie River Estuary prior to releases to tidewater and to determine the status of the individual estuarine ecosystems. Decisions regarding timing of releases and amount (level of

release) would be determined based on the status of the individual estuarine ecosystems, as well as consideration of local runoff contributions.

The CLA simulation results have shown that CLA nearly doubles (from 17% to 34%) the amount of time releases to the estuaries are made when in Zone D. Even though there would be an increase in the number of pulse releases to the estuaries, the increased flow to the estuaries does not necessarily indicate the performance of the estuaries is adversely affected. Estuaries can also be impacted by high salinity, especially during the dry periods. Some of the increased flow as a result of the CLA occurs during the dry periods when the estuaries would benefit from the low-level pulse releases. During these times, the estuaries may benefit from freshwater releases to attain the preferred salinity envelope.

The SFWMD estuary staff use oysters as indicator species for the health of the St. Lucie Estuary. In particular, flow and salinity envelopes are based on the salinity requirements of the American oyster (*Crassostrea virginica*). When estuary flows are too low and salinities are high, adult oysters are more susceptible to marine predators and to parasitic infections. At high estuary flows, oysters are progressively stressed physiologically by declining salinity.

Oysters can tolerate salinities resulting from flows in the 350 to 2,000 cfs range. In the 2,000 – 3,000 cfs range, oysters become stressed by low salinity and at flows above 3,000, mortality can occur. At flows below 350 cfs, salinity increases in the St. Lucie and oysters are more susceptible to marine predators and parasitic infections.

In the Caloosahatchee SFWMD staff use the condition of submerged grass beds as indicators of ecosystem health. Beds of tape grass, *Vallisneria americana*, located near the head of the estuary are sensitive to high salinity. Damaging salinities occur when monthly average discharge at the Franklin Lock and Dam falls below 300 cfs. At the mouth of the estuary, seagrasses, such as shoal grass, *Halodule wrightii*, prefer marine conditions. High discharges (> 2800 cfs) lower salinity and damage these beds. Flows in the range between 300 and 2800 cfs result in salinity conditions that are tolerable for both type of grass.

The CLA improves the likelihood of making smaller releases more often, as opposed to stressful high damaging estuary releases. Smaller releases are preferred because the higher volume releases can have adverse effects to estuarine biota. The CLA would allow water managers to have the enhanced flexibility to allow for more environmentally sensitive management of discharges to the estuaries. Reference section 4.5.1 for more detail. Additionally, more information on estuary performance for the CLA alternative can be found in **Appendix B**.

4.4.2 NO ACTION ALTERNATIVE (STATUS QUO)

The no action alternative and its effects on fish and wildlife resources would be similar to the effects on vegetation (reference section 4.2.2). High discharges result in high volumes of water that forces saline water out of the estuaries. It has been well documented (Chamberlain and Doering 1998a, 1998b and 1999; Mozzotti, *et al.* 2003;) that an optimum range of freshwater inflow is necessary for the survival of many estuarine fish, ichthyoplankton, zooplankton, and invertebrates. Species that are considered indicator organisms for estuarine health, such as oysters, could be disrupted during their reproductive stage by drastic changes to salinity.

4.5 ESSENTIAL FISH HABITAT

4.5.1 PROPOSED ACTION, CLASS LIMIT ADJUSTMENT

Adverse impacts to essential fish habitats as listed in Table 2 (Section 3.5) are not expected from the proposed action. The Caloosahatchee River and St. Lucie Estuaries conditions will continue to be monitored and evaluated. When the WSE regulation schedule requires that water must be released from the lake to the estuaries, technical experts on estuarine ecology will provide scientific input with regard to the effects of various discharge volumes. It has been well documented (Chamberlain and Doering 1998a, 1998b and 1999; Mozzotti, *et al.* 2003;) that an optimum range of freshwater inflow is necessary for the survival of many estuarine fish, ichthyoplankton, zooplankton, and invertebrates. On a weekly or more frequent basis, water managers and scientific staff review results from decision trees in the WSE regulation schedule to determine the amounts of freshwater to release from Lake Okeechobee. Estuary conditions, including estuary salinity ranges and biological indicators, are discussed and considered prior to water releases. Implementing the CLA to the WSE will not change any of these parameters, nor will it change the Adaptive Protocols for Lake Okeechobee Operations. The CLA will allow for lower to moderate pulse releases in an estuarine-sensitive manner and potentially reduce the need for high level regulatory releases that could adversely impact estuarine biota. Additional information on vegetation and fish and wildlife resources can be found in Sections 4.2.1 and 4.4.1.

The proposed action is completely operational, and no structural features, construction, modification of existing structures, or land acquisition is being proposed. This action will not adversely affect essential fish habitat or the species managed by the South Atlantic Fishery Management Council (SAFMC).

4.5.2 NO ACTION ALTERNATIVE (STATUS QUO)

Reference section 4.2.2 and 4.4.2.

4.6 HISTORIC PROPERTIES

The State Historic Preservation Officer (SHPO) indicated that no significant archaeological or historical resources are recorded within the project area (reference letter dated May 21, 2004, **Appendix C**). As such, there would be no affect to historic properties.

4.7 SOCIO-ECONOMIC

The primary land use surrounding Lake Okeechobee is agriculture. Sugar cane plantations, cattle ranching, citrus, vegetable production and ornamental nurseries make up the majority of agriculture land use in this area.

Recreational and sport fishing, along with commercial fishing, are major activities associated with Lake Okeechobee, which brings revenues to the marinas, fishing guides, hotels, and support industries around the lake. Lake Okeechobee also provides a wide variety of water and land based recreation including boating, airboating, picnicking, camping hunting, and hiking along the Lake Okeechobee Scenic Trail.

A full economic evaluation was completed for the WSE as part of the EIS documentation. The evaluation focused on agricultural and urban water supply, recreation, navigation, and commercial fishing. As indicated in the evaluation, potential adverse effects on the economy are not anticipated. As such, it is unlikely that the proposed operational change to the WSE would result in any significant economic change.

The St. Lucie and Caloosahatchee Estuaries also contribute significantly to the regional and state economy. No adverse socio-economic impacts to the estuary regions are anticipated by the proposed action.

4.8 AESTHETICS

The proposal would not adversely impact this value. The nature of this action is not visible or impacting to area aesthetics.

4.9 RECREATION

The proposed action would not adversely affect recreation.

4.10 WATER SUPPLY

The CLA performance relative to water supply is described in detail in **Appendix B**. Water supply performance of the CLA is not expected to significantly change compared to the base, or no action alternative. The CLA would not adversely impact water supply performance.

4.11 NAVIGATION

This action would not impede navigation through the Okeechobee Waterway or the Intracoastal Waterway.

4.12 WATER QUALITY

Potential benefits anticipated in shoreline areas of the lake where submerged plants occur. Water quality conditions in the estuaries may have a positive affect on salinity due to the potential increase in low-level releases from the lake during dry periods.

4.13 FLOOD PROTECTION

To evaluate flood protection of the preferred alternative, CLA, reference figure 11 in the SFWMD Technical Report in Appendix B. Figure 11 shows a performance measure that compares the maximum lake stage and the number of days the stage exceeds 16.5 ft, NGVD, during the beginning of the peak of the hurricane season. As compared to the base, the CLA simulation lowers the peak stage by over 0.55 ft., and reduces the number of days above 16.5 ft. from 17 to 3 (SFWMD Technical Report, *Appendix B*).

4.14 WATER CONSERVATION AREAS (WCA)

Several measures of performance for the Water Conservation Areas (WCAs) were evaluated by SFWMD staff. Hydroperiod differences relative to the Natural System Model were for the most part, not affected by CLA (reference *Appendix B* for more detail). However, there was a slight improvement, an extended hydroperiod, in Northern WCA-3A with the CLA alternative. CLA produced improved habitat suitability for wading birds relative to the Base (SFWMD Technical Report, *Appendix B*).

4.15 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

A preliminary assessment indicated no evidence of hazardous, toxic or radioactive waste (HTRW) affecting this action.

4.16 AIR QUALITY

Due to the operational nature of this action, there would be no affect on air quality.

4.17 NOISE

With the implementation of the proposed action, there would be no affect on existing or future noise levels.

4.18 NATIVE AMERICANS

No impact to Native American resources.

4.19 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible commitment of resources is one in which the ability to use and/or enjoy the resource is lost forever. One example of an irreversible commitment might be the mining of a mineral resource. An irretrievable commitment of resources is one in which, due to decisions to manage the resource for another purpose, opportunities to use or enjoy the resources as they presently exist are lost for a period of time. An example of an irretrievable loss might be where a type of vegetation is lost due to road construction.

As there is no proposed construction or alteration of existing features or landscape, there would be no irreversible or irretrievable commitment of resources as a result of this action.

4.20 COMPATIBILITY WITH FEDERAL, STATE, AND LOCAL OBJECTIVES

This action is compatible with Federal, State, and local objectives.

4.21 CONFLICTS AND CONTROVERSY

There are no unresolved issues. Concerns expressed by commenting Federal, State, and local governments and interested groups will be addressed in the final environmental assessment.

4.22 CUMULATIVE IMPACTS

The preferred alternative proposes no adverse impact to protected species, water quality, water supply or natural resources. The changes proposed by the CLA are minor and relatively easy to implement. The increased flexibility to implement this action will provide benefits to Lake Okeechobee without adversely impacting the performance of other lake management objectives.

4.23 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

4.23.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

Environmental information on the project has been compiled and this Environmental Assessment has been prepared. The project is in compliance with the National Environmental Policy Act.

4.23.2 ENDANGERED SPECIES ACT OF 1973

Consultation was initiated with National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) by letters dated September 10, 2004. This action was fully coordinated under the Endangered Species Act and is in full compliance with the Act.

4.23.3 FISH AND WILDLIFE COORDINATION ACT OF 1958

During the Lake Okeechobee Regulation Schedule Study, the WSE schedule was coordinated with the U.S. Fish and Wildlife Service (USFWS). As a result of the coordination, a Fish and Wildlife Coordination Act Report (CAR) dated October 1999 was prepared and submitted by the USFWS. The preferred action (CLA) in this EA falls within the scope of the existing CAR. As such, the 1999 CAR will apply to the temporary deviation. This EA was fully coordinated with the USFWS for comment. The proposed action is in compliance with the Act.

4.23.4 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)

(PL 89-665, the Archeology and Historic Preservation Act (PL 93-291), and executive order 11593) Consultation with the Florida State Historic Preservation Officer (SHPO), has been conducted in accordance with the National Historic Preservation Act, as amended; the Archeological and Historic Preservation Act, as amended and Executive Order 11593. SHPO consultation was initiated April 8, 2004. In a May 21, 2004 response, the SHPO indicated that no significant archaeological or historical resources are located within the project area. The project will not affect historic properties included in or eligible for inclusion in the National Register of Historic places. The project is in compliance with each of these Federal laws.

4.23.5 CLEAN WATER ACT OF 1972

The proposed action is in compliance with this act. As the proposed action is strictly of an operational nature, and does not involve any construction activity, water quality certification from the State of Florida is not required. Furthermore, as there are no structural components contained in the proposed action and no dredge and fill operations being considered, a Section 404(b) Evaluation is not appropriate.

4.23.6 CLEAN AIR ACT OF 1972

No air quality permits would be required for this action.

4.23.7 COASTAL ZONE MANAGEMENT ACT OF 1972

A federal consistency determination in accordance with 15 CFR 930 Subpart C is included in this report as *Appendix C*. State consistency review was performed during the coordination of the draft EA and the State has determined that the project is consistent with the Florida Coastal Zone Management Program.

4.23.8 FARMLAND PROTECTION POLICY ACT OF 1981

Project activities will not affect agriculture lands within the project area. The proposed action recommends a temporary deviation to the existing lake regulation schedule and will not impact existing or future agricultural or associated urban water supply. This act is not applicable.

4.23.9 WILD AND SCENIC RIVER ACT OF 1968

The Northwest Fork of the Loxahatchee River is designated a Wild and Scenic River. This resource is not expected to be adversely impacted by the proposed action. The study is in full compliance with this act.

4.23.10 MARINE MAMMAL PROTECTION ACT OF 1972

The proposed action is operational and does not involve construction activities; there would not be any adverse impact to marine mammals in the area. Therefore, this action is in compliance with the Act.

4.23.11 ESTUARY PROTECTION ACT OF 1968

The Indian River Lagoon and Charlotte Harbor are part of the National Estuary Program established by Section 320 of the Clean Water Act. This action would not adversely affect these estuaries. As such, the action is in compliance with this Act.

4.23.12 FEDERAL WATER PROJECT RECREATION ACT

The effects of the proposed action on outdoor recreation have been considered. Benefits to fishing, boating and wildlife viewing should be accrued by implementation of the proposed action. Therefore, the action is in compliance with this act.

4.23.13 FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976

This action is being coordinated with the National Marine Fisheries Service (NMFS) and will be in compliance with the act.

4.23.14 SUBMERGED LANDS ACT OF 1953

The project would occur on submerged lands of the State of Florida. The project has been coordinated with the State and is in compliance with the act.

4.23.15 COASTAL BARRIER RESOURCES ACT AND COASTAL BARRIER IMPROVEMENT ACT OF 1990

There are no designated coastal barrier resources in the project area that would be affected by this project. These acts are not applicable.

4.23.16 RIVERS AND HARBORS ACT OF 1899

The proposed work would not obstruct navigable waters of the United States. The project is in full compliance.

4.23.17 ANADROMOUS FISH CONSERVATION ACT

Anadromous fish species would not be affected. The project has been coordinated with the National Marine Fisheries Service and is in compliance with the act.

4.23.18 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT

No migratory birds would be affected by project activities. The project is in compliance with these acts.

4.23.19 MARINE PROTECTION, RESEARCH AND SANCTUARIES ACT

This act is not applicable. Ocean disposal of dredged material is not proposed as a part of the proposed action.

4.23.20 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT

Coordination of this Environmental Assessment (EA) by cover letter dated September 10, 2004, constitutes initial consultation with the National Marine Fisheries Service under provisions of this Act. Based on analysis discussed in this

EA, the Corps has determined that the proposed action would not adversely affect the essential fish habitat of species managed under this Act.

4.23.21 E.O. 11990, PROTECTION OF WETLANDS

No wetlands would be affected by project activities. This project is in compliance with the goals of this Executive Order.

4.23.22 E.O. 11988, FLOOD PLAIN MANAGEMENT

The project is in the base flood plain (100-year flood) and has been evaluated in accordance with this Executive Order. Project is in compliance.

4.23.23 E.O. 12898, ENVIRONMENTAL JUSTICE

The proposed action would not result in adverse health or environmental effects. Any impacts of this action would not be disproportionate toward any minority. The activity does not (a) exclude persons from participation in, (b) deny persons the benefits of, or (c) subject persons to discrimination because of their race, color, or national origin. The activity would not impact "subsistence consumption of fish and wildlife".

4.23.24 E.O. 13089, CORAL REEF PROTECTION

The proposed action would not result in adverse impacts to coral reef ecosystems. No coral reef habitats exist within or near the project area. This act is not applicable.

4.23.25 E.O. 13112, INVASIVE SPECIES

This action does not authorize, fund, or carry out action that might spread or introduce invasive species.

5 LIST OF PREPARERS AND REVIEWERS

NAME	DISCIPLINE	ROLE/RESPONSIBILITY
Yvonne Haberer	Biologist, USACE	Environmental Coordination; Document Preparer
David McCullough	Archeologist, USACE	Cultural Resources
Tiphannie Taylor	Engineer, USACE	Water Management
Susan Sylvester	Engineer, USACE	Water Management
John Zediak	Chief, Water Management and Meteorology Section, USACE	Reviewer
Carl Dunn	Engineer and Project Manager, USACE	Reviewer
Brooks Moore	Attorney, USACE	Reviewer
Ivan Acosta	Environmental Engineer, Team Leader, USACE	HTRW Evaluation and Reviewer
Susan Gray	Director, Lake Okeechobee Division, SFWMD	Reviewer
Cal Neidrauer	Engineer, Water Control Operations Section, SFWMD	CLA Technical Document and Reviewer
Karl Havens	Environmental Scientist, SFWMD	Evaluator of Lake performance measures and Reviewer
Peter Doering	Environmental Scientist, SFWMD	Evaluator of Estuary performance measures and Reviewer
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Walter Wilcox	Engineer, Office of Modeling, SFWMD	Modeler

6 PUBLIC INVOLVEMENT

6.1 SCOPING AND DRAFT EA

A scoping letter dated April 8, 2004 was issued for the proposed action. A draft EA/FONSI dated August 2004 was circulated for public coordination.

6.2 AGENCY COORDINATION

A copy of the draft EA was coordinated with Federal, State, and local agencies. Many agencies commented as a result of the draft EA/FONSI. Comments and agency coordination letters can be found in ***Appendix C***.

6.3 LIST OF RECIPIENTS

Copies of the draft EA/FONSI was circulated to Federal, State, local agencies, and interested groups for review and comment. A mail list of those recipients is attached in ***Appendix C***. The EA/FONSI is also posted to the Corps' website under "Lake Okeechobee Regulation, Temporary Deviation to the WSE" at <http://planning.saj.usace.army.mil/envdocs/envdocsb.htm>.

6.4 COMMENTS RECEIVED AND RESPONSE

EA comments received, and responses to those comments, are included in ***Appendix C, Pertinent Correspondence***.